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Final Report

Portal Project, Phase 3
Jefferson County, Montana
P.R. 2240-G

January, 1987

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L. C. HANSON COMPANY
CONSULTING ENGINEERS & SURVEYORS
HELENA — GREAT FALLS — GLENDIVE

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Final Report

Portal Project, Phase 3
Jefferson County, Montana
P.R. 2240-G

January, 1987

Prepared for: Mr. Richard Juntunen, Chief
Abandoned Mine Reclamation
Bureau
Department of State Lands
1625 11th Ave.
Helena, MT 59620

Prepared by: L.C. Hanson Company
Consulting Engineers
P.O. Box 299
Helena, MT 59624

Project Inspector: Robert Ross, P.E.

I. Introduction

A. Project Objectives

The Phase 3 Portal Project was undertaken to eliminate the public safety hazards resulting from unreclaimed mine openings at several abandoned hardrock mines in Jefferson County, Montana. Closure of dangerous shafts and adits through backfilling, bulkhead installation, and/or fencing was accomplished to eliminate accidental entry.

B. Project Location

The project covered six sites located close to Clancy, Montana. Legal descriptions are listed below and site locations are shown on the vicinity map contained herein.

Clancy Mining District

Clancy Creek Site	T8N R3W Sec. 8 NW
Cole - Liverpool Site	T9N R3W Sec. 33 SW
Haynes Site	T8N R3W Sec. 17 NE
Marks - BLM Site	T8N R3W Sec. 5 S
Stiles - Mammoth Site	T8N R3W Sec. 9 SE
Wall Site	T8N R3W Sec. 16 NE

C. History

Hardrock mining has taken place in Montana since 1862 and was essentially unregulated from a reclamation standpoint for over one hundred years. This resulted in thousands of hazardous shafts and adits in mining districts across the state.

A brief history of the Clancy Mining District follows. Where production statistics are available for individual sites, they are noted.

Placer mining began in 1865 and lode mining soon after. Mining activity was greatest prior to 1900. Total production to the end of 1928 is estimated at \$3,500,000 chiefly in silver with some gold, lead, and copper.

Liverpool Mine - This mine was the principle silver mine in the Clancy District. The period of greatest activity was 1893 to 1907 and the latest activity 1951. Between 1904 & 1951 there were 18 producing years with 82 ounces of gold, 570,078 ounces of silver, 800,000 pounds of lead, 1,707 pounds of copper and 49,115 pounds of zinc produced.



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D. Site Description And Problems

The sites included in this project are located in or near residential areas, historic sites, close to public roads or in recreation areas. All mine openings threatened public safety. The shafts involved were of depth great enough to prevent unaided escape upon entry. Adits were reclaimed or bulkheaded to protect the curious from unsuspected dangers.

II. Description of Project Reclamation

A. Project Planning

Backfill was recommended for all mine openings to permanently eliminate the hazards. Many landowners refused to allow this, insisting instead on accessing bulkheads or fencing. These techniques do accomplish the goal of preventing accidental entry but are semi-permanent in nature and may require maintenance in the future.

B. Chronological History

Pre-Bid Conference	November 7, 1983
Bid Opening	November 16, 1983
Contract Award	November 17, 1983
Contract Awarded To:	

Resource Engineers & Associates
P.O. Box 5624
Helena, MT 59604
(406)443-1840

Pre-construction Meeting	April 10, 1984
Notice to Proceed	May 7, 1984
Began Work	April 17, 1984
Substantial Completion	June 30, 1984
Resumed Work	October 9, 1984
Project Completed	October 9, 1984

C. Equipment

Bobcat Loader
Ford Tractor with Fence Post Driver
Welder

D. Construction Operations

The Contractor performed the following:

1. Backfilled 4 shafts
2. Installed 1 steel grate (20'x 20')
3. Installed 1 adit door (6'x 6')
4. Installed combination barbed and woven wire fence at 5 sites
5. Revegetated all areas disturbed by construction activities

III. Cost Summary

A. Final Payment Request

A copy of the Final Payment Request is contained in Appendix A. That document contains the final quantities and costs for each work item.

B. Change Order

No Change Orders were executed during the course of the project.

C. Cost Per Site / Unit

The following summary describes the work performed (with estimated or measured quantities) and the total cost for each site:

- | | |
|-----------------------------------|-------------|
| 1. Wall Site | \$ 4,794.00 |
| a. Install steel grate (20'x 20') | |
| b. Backfill 2 shafts (225 c.y.) | |
| c. Seed, fertilize & mulch | |

2.	Haynes Site	\$ 3,219.00
	a. Backfill 2 shafts (110 c.y.)	
	b. Install wire fence (22.9 rods)	
	c. Install hazard signs (8 each)	
	d. Install adit door (6'x 6')	
	e. Seed, fertilize & mulch	
3.	Stiles-Mammoth Site	\$ 1,324.00
	a. Install wire fence (15 rods)	
	b. Install hazard signs (8 each)	
	c. Seed, fertilize & mulch	
4.	Cole-Liverpool Site	\$ 5,852.00
	a. Install wire fence (75.9 rods)	
	b. Install hazard signs (28 each)	
	c. Seed, fertilize & mulch	
5.	Clancy Creek Site	\$ 1,345.00
	a. Install wire fence (14.5 rods)	
	b. Install hazard signs (4 each)	
	c. Seed, fertilize & mulch	
6.	Marks-BLM Site	\$ 5,296.00
	a. Install wire fence (82.4 rods)	
	b. Install hazard signs (24 each)	
	c. Seed, fertilize & mulch	

	Total Project Cost	\$ 21,830.00

IV. Summary

A. Completed Reclamation

The required work was completed within the Contract time allowed.

The project resulted in complete plugging of some shafts and limits access to other adits and shafts by installed grates, doors and fences. Hazard signs were installed where appropriate. Revegetation of disturbed areas was also accomplished.

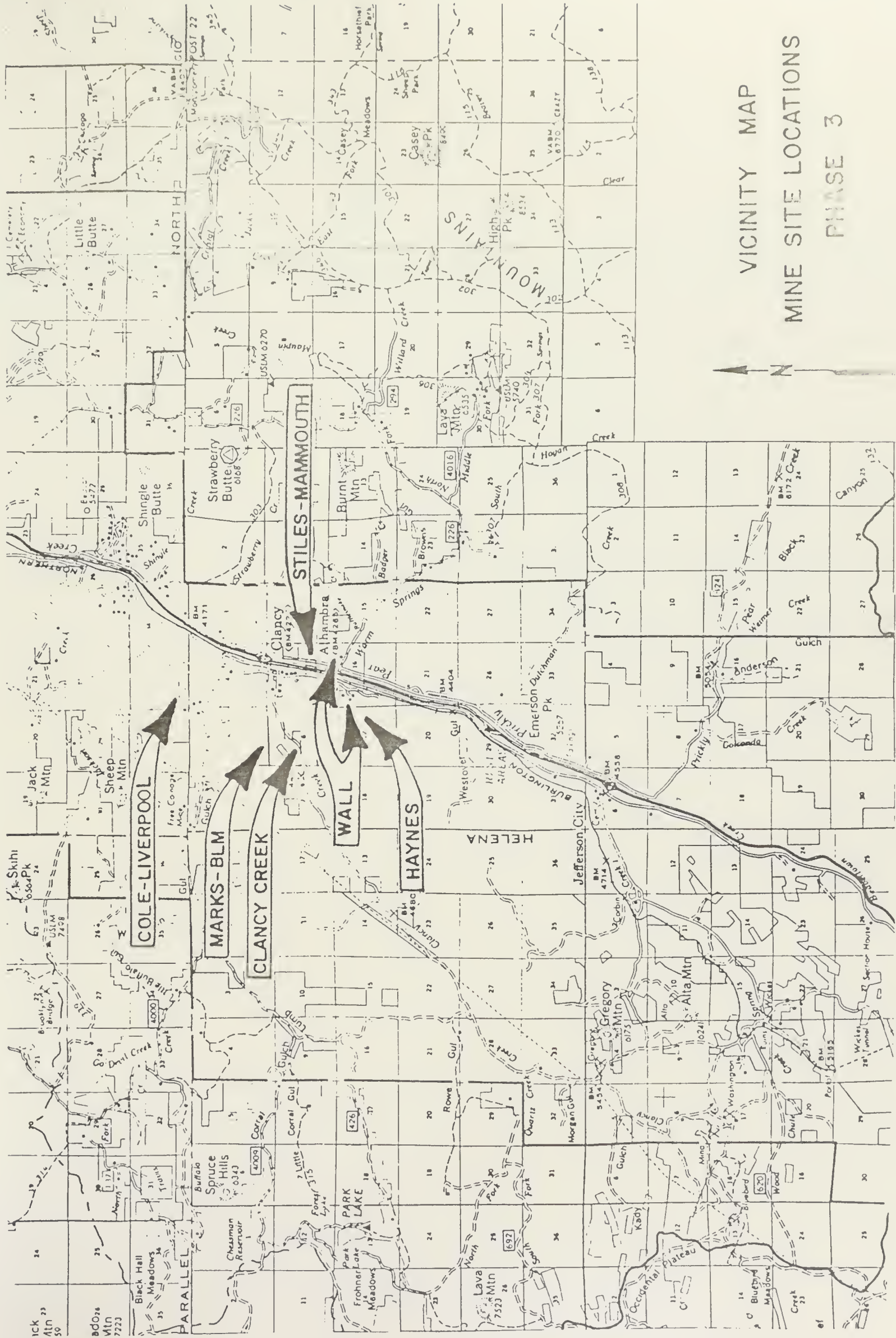
B. Comments

The Contractor completed the work as specified.

Monitoring of all sites should be undertaken periodically to insure all backfilling and fencing work and the revegetation efforts remain intact.

V. Slides

The slide log and slides are contained in Appendix B.



VICINITY MAP
MINE SITE LOCATIONS
PHASE 3

APPENDIX A

FROM July 1, 1984 TO October 10, 1984

PROJECT NAME PORTAL PROJECT, PHASE 3 - JEFFERSON COUNTY, MONTANA

LOCATION JEFFERSON COUNTY, MONTANA PROJ. NO. P.R. 2240-G

NAME OF CONTRACTOR RESOURCE ENGINEERS & ASSOC., ADDRESS Box 5624 Helena, MT 59604
INC

CHANGE ORDERS			CONTRACT STATUS			
No.	Description	Amount	Total Amount	Completed Amount	Uncompleted Amount	Per Cent Complete
			21,975.00	21,829.40	0	100
Total Change Orders			0	0	0	0
CONTRACT TO DATE INCLUDING CHANGE ORDERS			21,975.00	21,829.40	0	100

TOTAL RETAINAGE \$	COMPLETED TO DATE \$ 21,829.40
SECURITIES ON DEPOSIT \$	PLUS MATERIALS ON SITE \$ 0
ADJUSTED RETAINAGE \$	TOTAL COMPLETED TO DATE \$ 21,829.40
*For use only when securities are on deposit in lieu of 10% retainage.	*10% OR ADJUSTED RETAINAGE \$ 0
	TOTAL AMOUNT EARNED TO DATE \$ 21,829.40
	LESS PREVIOUS PAYMENTS \$ 21,329.40
	AMOUNT DUE THIS PAYMENT \$ 500.00
	LESS 1% TAX \$ 5.00
	TOTAL DUE CONTRACT \$ 495.00

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Resource Engineers and Associates
(Contractor)

By Thomas J. Wong

Date 10/12/84

RECOMMENDED BY:
L. C. Hanson Company
(Engineer)

By James G. Salin

Date 10/16/84

Approved By:

Montana Department of State Lands

Owner

Susan McCreally for

Richard Juntunen, Chief
Abandoned Mine Reclamation Bureau

ITEMIZATION OF QUANTITIES AND COSTS - PORTAL PROJECT - PHASE 3

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	WORK COMPLETED TO DATE	COST COMPLETED WORK	PERCENT COMPLETE
1.	BACKFILL MINE OPENINGS	LUMP SUM	1,066.00	100%	1,066.00	100
2.	STEEL GRATE SYSTEM	1 EACH	3,928.00	1 EACH	3,928.00	100
3.	FENCE-WIRE TYPE CW OR CM	224 RODS	22.00	210.7 ROD	4,635.40	100
4.	PANEL-SINGLE TYPE CW OR CM	18 EACH	77.00	17 EA	1,309.00	100
5.	PANEL-CORNER TYPE CW OR CM	72 EACH	108.00	75 EACH	8,100.00	100
6.	GATE - METAL 4 FT.	20 L.F.	15.00	20 L.F.	300.00	100
7.	DEADMAN	4 EACH	25.00	None Required	-0-	N/A
8.	INSTALL STATE FURNISHED SIGNS	72 EACH	10.00	72 EACH	720.00	100
9.	ADIT DOOR	1 EACH	1,271.00	1 EACH	1,271.00	100
10.	SEEDING, FERTILIZING, MULCHING	LUMP SUM	500.00	100%	500.00	100
	TOTAL				\$21,829.40	

APPENDIX B

Portal Project Phase 3
Clancy Mining District, Jefferson County
Slide Log

1. April, 1982	Before:	Wall Shaft #1 - Grate Site
2. May, 1984	During:	Wall Shaft #1 Pouring Grate Pedestals
3. May, 1984	During:	Wall Shaft #1 Pouring Grate Pedestals
4. May, 1984	During:	Wall Shaft #1 Pouring Grate Pedestals
5. May, 1984	After:	Wall Shaft #1 Grate Installed
6. May, 1984	After:	Wall Shaft #1 Grate Installed
7. April, 1982	Before:	Wall Shaft #2 - Backfill Site
8. April, 1982	Before:	Wall Shaft #3 - Backfill Site
9. May, 1982	Before:	Haynes Trench #1 - Fence Site
10. May, 1982	Before:	Haynes Trench #2 - Fence Site
11. May, 1982	Before:	Haynes Trenches #1 & #2 - Fence Sites
12. May, 1982	Before:	Haynes Shaft #1 - Fence Site
13. May, 1982	Before:	Haynes Shaft #1 - Fence Site
14. May, 1982	Before:	Haynes Shaft #3 - Backfill Site
15. May, 1982	Before:	Haynes Adit #1 - Adit Door Site
16. May, 1984	Before:	Stiles-Mammouth Shaft #1 - Fence Site
17. May, 1984	Before:	Stiles-Mammouth Shaft #1 - Fence Site
18. May, 1984	After:	Stiles-Mammouth Shaft #1 - Complete
19. April, 1982	Before:	Stiles-Mammouth Shaft #2 - Fence Site
20. April, 1982	Before:	Stiles-Mammouth Shaft #2 - Fence Site
21. May, 1984	After:	Stiles-Mammouth Shaft #2 - Complete
22. May, 1982	Before:	Liverpool Shaft #1 - Fence Site
23. May, 1982	Before:	Liverpool Shafts #1 & #2 - Fence Sites
24. May, 1982	Before:	Liverpool Shaft #2 - Fence Site
25. May, 1982	Before:	Liverpool Shaft #4 - Fence Site
26. May, 1982	Before:	Liverpool Shaft #5 - Fence Site
27. May, 1982	Before:	Liverpool Shaft #5 - Fence Site
28. May, 1982	Before:	Liverpool Shaft #6 - Fence Site
29. May, 1982	Before:	Liverpool Shaft #6 - Fence Site
30. May, 1982	Before:	Liverpool Shaft #7 - Fence Site
31. May, 1982	Before:	Liverpool Shaft #8 - Fence Site
32. May, 1982	Before:	Liverpool Shaft #8 - Fence Site
33. May, 1982	Before:	Liverpool Shaft #4 - Fence Site
34. May, 1982		View of Liverpool Dump
35. May, 1982		View of Liverpool Dump
36. May, 1982		Oreshoot at Liverpool Mine
37. June, 1983	Before:	Marks-BLM Shaft - Fence Site
38. June, 1983	Before:	Marks-BLM Shaft - Fence Site
39. April, 1982	Before:	Marks-BLM Shaft - Fence Site
40. April, 1982	Before:	Marks-BLM Shaft - Fence Site
41. June, 1983	Before:	Marks-BLM Shaft - Fence Site
42. May, 1984	After:	Marks-BLM Shaft - Complete
43. May, 1984	After:	Marks-BLM Shaft - Complete
44. May, 1984	After:	Marks-BLM Shaft - Complete

